



# ***DARPA*Tech**

## ***2002 Symposium***

*Transforming*  
***Fantasy***



**Steve Buchsbaum**  
Program Manager



# The Counter Underground Facility Program (CUGF)

Dr. Steve Buchsbaum  
Dr. Daniel Cress

Program Managers

Special Projects Office



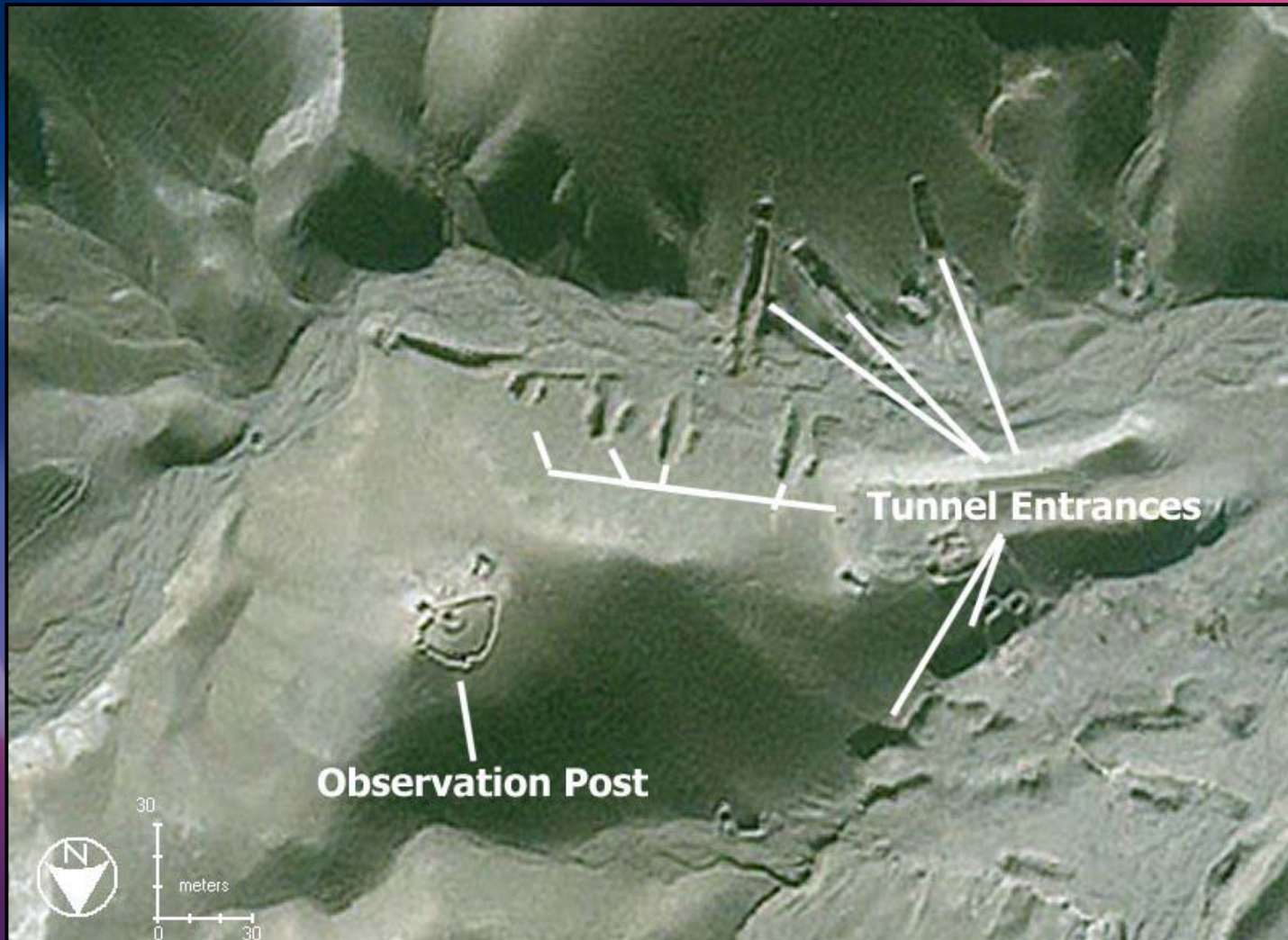
# UGF THREAT TYPES



*Indian IRS-1D 5-meter image courtesy of Space Imaging*



# UGF THREAT TYPES



# UGF THREAT TYPES





**Find/Detect**



**Characterize**



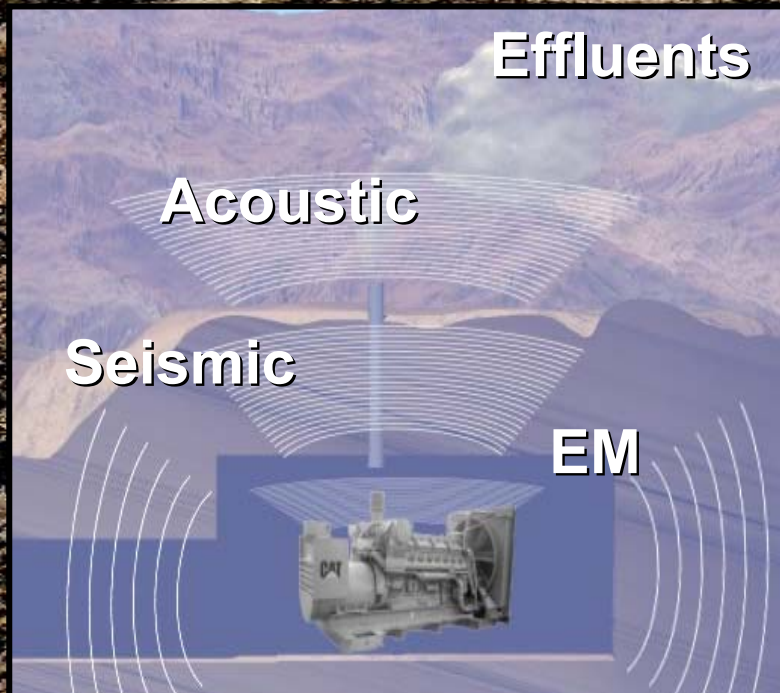
**Engagement**



**Damage Assessment**



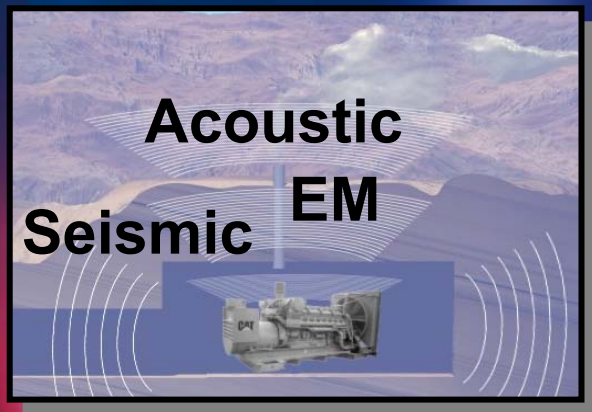
- ▶ **Function identification**
- ▶ **Occupancy and pace of activity**
- ▶ **Detailed characterization**
- ▶ **Damage Assessment**



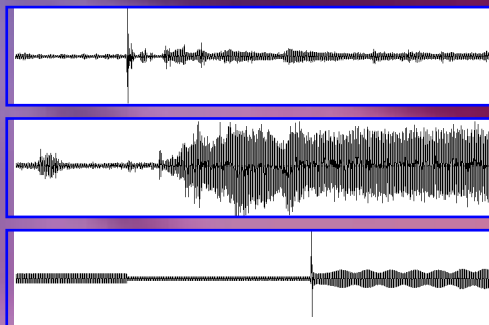


# PASEM\* Exploitation

\*Passive Acoustic, Seismic, EM



## UGF Source Signatures



**Extract weak signals via  
cross-mode correlation**



**Increased Detection Range**



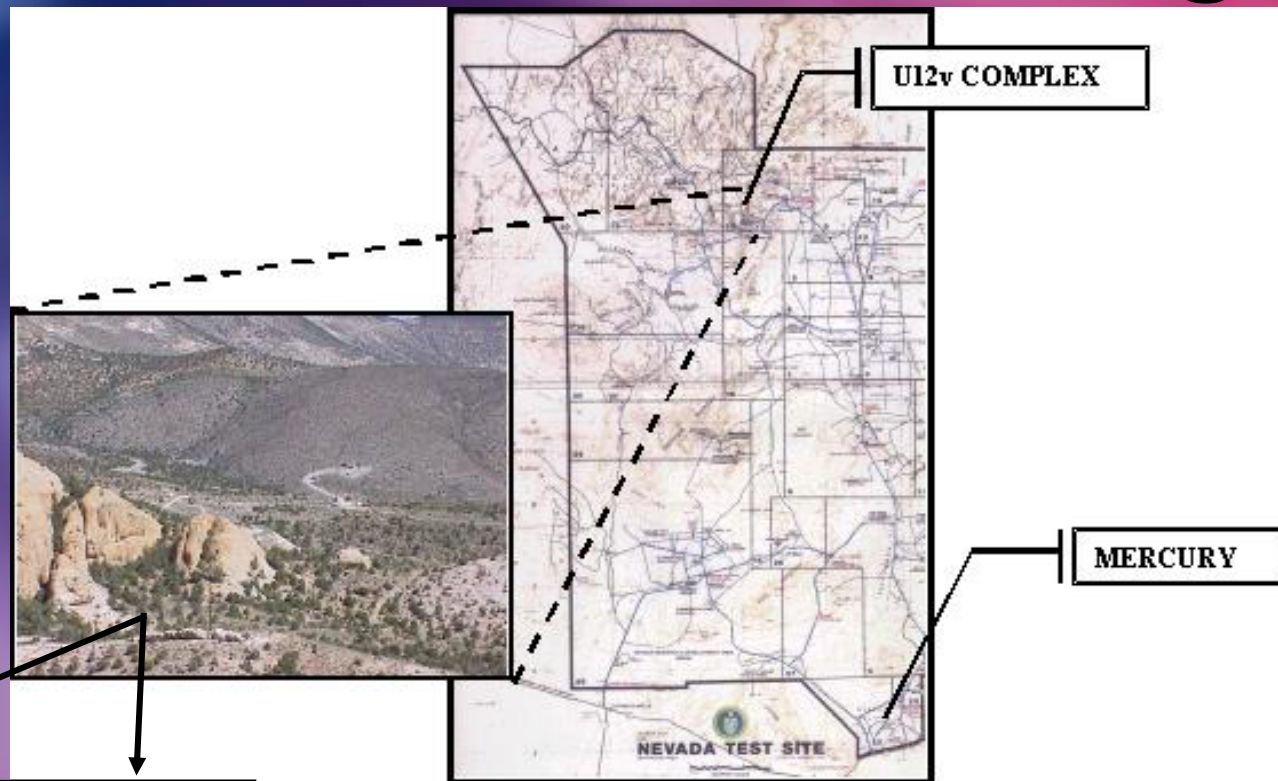
## Program Element Goals

- Exploit plume to detect and localize facility vents
- Monitor facility power status, operational tempo and battle damage via effluents





# DARPA Validation Testing





# Follow-on Program – BAA 02-04

Counter Underground Facilities (CUGF) Unattended Ground Sensor System and Innovative Technology Initiatives

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## Program focus

- ▶ Designs for detection and exploitation of UGF-related observables
- ▶ Areas of interest: novel sensors, planning, deployment, communications, modeling, exploitation algorithms and signal processing.

<http://www.darpa.mil/spo/solicitations.htm>







# Follow-on Program – BAA 02-04

## Counter Underground Facilities (CUGF) Unattended Ground Sensor System and Innovative Technology Initiatives

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### Work Area 1

- ▶ Development and demonstrations of a prototype ground sensor system

### Work Area 2

- ▶ Innovative methods and technologies

<http://www.darpa.mil/spo/solicitations.htm>



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